colored slides. Of the 600,000 known varieties of insects a large percent are beneficial, but the chewing or sucking insects that feed on golf turf are about as devastating as insects can get.

Schread detailed work with arsenics, DDT and chlordane, telling of methods, time and rate of applications. Chlordane he found was most effective with its combination of irritant, stomach poisoning and fumigating. Prevention of damage to soil he went into as a vital factor in grub control. Tropical earthworm or stink worm he said was effectively controlled by chlordane, but as far as his work had gone the "118" compound was even more effective.

Chinch bugs and ants were completely controlled by chlordane and 118, Schread said. For ant control the chlordane must be applied with a pressure spray and washed in with clear water.

Jerry Bowden, as chairman of the Feb. 10 A.M. session, introduced Dr. H. E. Hayward, U. S. Dept. of Agriculture, Los Angeles, whose paper was on "Saline and Alkali Soil – Properties and Management." Dr. Hayward told of materials not conducive to healthy growth of golf turf present in appreciable quantities in Colorado river water supplied to Los Angeles region and in other sources of golf course water supply. Saline and alkali soil conditions are aggravated by such water and unless tolerant grasses are developed or remedial treatment applied, greenkeepers are going to have increasing difficulties with unfavorable factors in the water.

Role of Chemistry and Research

The Hayward address as did those of Dr. R. N. Jefferson of UCLA on "New Developments in Insecticides" and A. S. Crafts, also of UCLA, on "New Developments in Weed Control," emphasized the role chemistry has in modern greenkeeping and the part that research has in helping greenkeepers to find the right answers without ruinous delay or dangerous trialand-error experiments made under member pressure on courses. These three papers will be printed, digested, in forthcoming issues of GOLFDOM.

Application of the scientists' work by the greenkeeper was the subject of Malcolm McLaren's presentation. McLaren spoke on "Large Scale Application of DDT" in grub control after working out the plan with Ohio Experiment Station men. Mac got results that saved his course at a cost of



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\$26.76 per acre. He showed colored slides of the work and there was considerable discussion following McLaren's story.

George Thompson, president for many years of Hillcrest CC, Los Angeles, in speaking of "What Golf Means to the Businessman," said that it means an escape from worries and responsibilities generally, but the club official often doesn't manage to make that escape. He lauded greenkeepers for supplying club officials with the satisfaction of knowing that experts are competently and conscientiously handling the basically important problem of course conditioning and management.

The problem of supplying golf club facilities to desirable young men and that of caring for the increasing play of women disturb club officials now. Thompson said, and it's a good thing that the greenkeepers are demonstrating such fine capacity in relieving officials of problems of course operation.

Wm. Johnson, Griffith Park, LA, was chairman of the concluding session of the educational conference. The veteran architect and builder William Bell opened that session with his address on "Architect Relationship in Course Alteration" which was accompanied by motion pictures of Bell's job in remodelling the 13th and 14th holes and 12th green at Annandale where Bill Malcolm is supt. Work was begun on June 2 and the remodelled areas were in good condition for play in January. A hill on the 14th hole required removal of 12,000 yds, of earth.

Controlling Factors in Design

Bell, who's built many fine courses on the Pacific slope, always has been keenly conscious of the greenkeeper's part of the work. He was the first one to introduce bent greens into southern California. Billy said that construction, like greenkeeping, has made many advances and especially in economical and speedy handling of earth. He said that the greenkeeper's knowledge of local soil, climatic and turf conditions always is a controlling factor in design and construction for satisfactory maintenance but that a greenkeeper or green-committee cannot be expected to have the specialized knowledge and foresight on design that an architect acquired. Alteration to make play less of a strain on older members, to speed up play and increase safety on heavy traffic courses without sacrificing interest of the holes constitutes the archi-



tectural problem from the members' viewpoint. The greenkeeper wants the holes changed for lower maintenance, elimination of bad water or air drainage and general assurance of good conditioning without undue work or expense. Satisfying all parties involved is a task to demand the abilities of a thoroughly qualified specialist, Bell said.

Husky Harry Schoth of the US Dept. of Agriculture at Corvallis, Ore., a protege of the late Dr. Piper in pioneering in golf grass seed development, spoke on "Grass Seed Production on the West Coast." Schoth in telling how west coast grass seed production grew from a \$50,000 yearly crop 25 years ago to a \$20,000,000 crop in 1947, gave details of the production of Seaside, Astoria, Highland, Colonial and Velvet bents and three primary varieties of fescue. He said bluegrass is in prospect in considerable quantities from the west coast. He also advised that one variety of alkali grass is available in good quantity from the west coast.

Stratified Soil Problem

Don Strand, supt., Westmoreland CC, Wilmette, Ill., told of his battle with poa annua as a stubborn element in "The Re-



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AIR WALK COMPANY Box 52, Clayton 5, Mo. novation of Turf." Strand went into details of soil compaction, aeration, drainage and weed infestation in telling how he restored "worn out" turf. He said the work all has to start with soil and plant tissue tests to determine existing conditions and needs, then must get into soil mechanics.

Strand said that stratified soil preventing root penetration is the general problem, he observed on greens. In renovating his greens he removed sod, added coarse sand. mixed subsoil with a Rototiller and replaced bad turf with sod from his nursery in which same soil composition and maintenance methods had been used as is used on greens. Fairway renovation is mainly a long and patient job of introducing aggressive and desirable grasses when they'll get strong growth and keep undesirable grasses from returning. Golfers' desire for close mowing and a lot of watering complicates the greenkeeper's problems of turf renovation but Strand remarked that the courses are for players primarily instead of being grass exhibits, so the greenkeeper simply has to make adjustments.

F. W. Roewekamp, Los Angeles, in his address on "Value of Trees on A Golf



Golfdom

Course," outlined soil, wind, climatic, water and maintenance factors in determining selection of trees for a golf course. He spoke of architectural as well as maintenance elements in golf course tree work. He advised creating mass effects with native trees, bearing in mind that low trees make a fairway seem longer than it measures, that shallow rooted trees cause trouble around greens and that deciduous trees not placed with wind conditions in mind annoy the players and add to maintenance expense.

He advised against shrubs except around tees and building. He said that inspection and maintenance of trees should be regular procedure in maintenance. He also urged greenkeepers to get bulletins of the National Shade Tree Conference and state agriculture college tree information.

Dr. G. O. Mott, Purdue University Agriculture Experiment station, Director of the Midwest Turf Foundation, made an intensely practical presentation of "The Problem of Soil Compaction, Aeration and Drainage." Mott brought out that these factors are the most common cause of serious trouble at golf courses today. Architectural alterations are extensively improving surface drainage but water-logged roots in subsoil continue to be the greenkeepers' biggest problem.

Old Drainage Ineffective

Lack of proper subsurface composition enabling oxygen to nourish soil microorganisms is one phase of the problem. Another is heavy clay that prevents penetration of water so the roots are dry notwithstanding heavy watering or rainfall. Sand or gravel under a few inches of topsoil may keep shallow roots continually saturated and prevent growth. Mott pointed out that drainage tiles only remove free water which is beyond the waterholding capacity of the soil and that tiling doesn't suck water down. Treatment with aerifiers and topdressing of high sand content remedies many undesirable conditions. Mott showed colored slides of turf injuries from poor aeration and drainage. He said that farmers are finding that old drainage is losing its effectiveness due to inability of free water to get to the tiling and that golf course superintendents also are making the same discovery.

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The educational conference sessions concluded with a talk by Dean R. W. Hodgson, UCLA, on "The Importance of Plant Research on a Regional Basis." Dean Hodgson said that industry considers that research expense can't safely be reduced much under 2 per cent but the agricultural and turf research funds, nationally and regionally, are but a small fraction of the industry figure, notwithstanding the tremendous importance and extent of agricultural and turf problems. Industry has found that research pays great dividends, and so have those immediately associated with plant production. But getting funds to meet even the increasing costs of present plant research is a job as tough and as complex as it is urgent.

Conference sessions always were packed by attentive listeners. It was warmly agreed that the program committee of Chet Mendenhall, Ray Gerber and Norman Johnson representing the NGSA, and the Southerm California superintendents' representatives. had presented the best program for quick and profitable application to courses of convention attendants that the association had set forth in its 20 years of service to American golf.



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Advance guard of the NGSA 1950 convention at Boston consisted of Elmer B. Fuller, supt., Highland CC, Attleboro, Mass. and Philip Cassidy, supt., Weston (Mass.) CC . . . Cassidy and Fuller came on club budgets and found in discussions that New England had a lot of course maintenance problems in common with Southern-California . . . In talks about how chairmen got in and pitched with supts. Cassidy praised his chairman, Raymond Clapp, formerly manager of a farm bureau, and Fuller put in plugs for his kind of a chairman, Dr. E. M. Webb, a dentist . . . One of the great old timers around the convention was Wm. H. Tucker, sr., who was brought over by the late John Reid to build St. Andrews at Mt. Hope, N. Y., in 1893 . . . John DaDalt, supt. at Burlingame (Calif.) CC, built a new 9 holes last year. He says modern methods of dirt handling, seeding, fertilizing and drainage bring construction costs well in line with what they were when he went to Burlingame 18 years ago.

Thirty years ago when Ken Goit was a young officer in the US navy he stayed at Alexandria hotel on his first trip to LA. . . . He wasn't in the hotel again until it was headquarters of the NGSA this year . . . Harold Henry of D. B. Bell and Son at the meeting saying that sales service is about as tough a job as greenkeeping . . . Joe Mayo tame over from Hawaii where he's been doing construction work with Billy Bell . . Joe recalled that when he was building the Peninsula course at Monterey for the late Seth Raynor in 1926 the other Joe Mayo was building the Waialae CC course in Hawaii for Raynor . . . The two Joe Mayos got their mail mixed plenty.

Al Linkogel, Tom Henry and Oscar Bowman of St. Louis were stuck two days aboard a train in a Wyoming snowdrift en route to the convention . . . W. E. Langton, San Gabriel veteran, now working on a book about his 50 years in greenkeeping . . . It should be a classic of its kind for Langton's got an interesting story and he's an excellent writer.

Reunion of Billy Bell Alumni Assn. at LA . . . Among those present were Art Sutherland, supt., Lakewood, who went to the club when Bell was building it in 1932 . . . Art did a fine job in preparing for and handling this year's Long Beach Open

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Your Correspondence Invited

COOL CREST GOLF COURSE 1402 Fredericksburg Road San Antonio 1, Texas . . . Ellis Van Gordon, now supt. Stanford university course, started in course maintenance work with Bell in 1923 at Annandale . . . Bill Malcolm, Annandale's supt., also started when Bell was greenkeeper there . . . The boys talked about Bell, in 1919, planting the first bent greens in Southern California . . . There were a lot of dismal forecasts made . . . Bob Henderson and Art "Scotty" Stephens, elders of the Buffalo (N. Y.) corps of greenkeepers have a good philosophy about keeping young in greenkeeping . . . They say a guy is kept young by so often having some damned new trouble he has to lick.

Jim Hoffman was kept busy wheeling his Roseman tractor around the Coliseum infield towing equipment in the demonstrations . . . Jim towed the Mascaro FG Aerifier around at high speed taking plugs out of the near-abode soil of the infield and hauled the Springfield sweeper at high speed in another convincing demonstration, picking up broken bottles, paper, butts of hot dogs, loose grass and leaves . . . Sprinkler demonstrations were impressive too . . . This outdoor demonstration program shows great promise . . . It needs a set program and some hills for complete testing, but the idea is going to grow.

GIVE IT TO THE INDIANS



Joe Durgen (R), pro, Clarkston (Wash.) G&CC instructs three members of Nez Perce tribe how to make use of new 3-hole course constructed at Nez Perce Indian reservation, Lapwai, Idaho, Archie Phinney, supt. of reservation and full-bloaded member of the tribe, had the course built to save golfing tribesmen 25 mile trip to Clarkston. Among 25 Nez Perces who play regularly Durgan says some show promise of employing their notural athletic aptitude in becoming expert golfers.

Organize Pam Barton Days

Women golfers of the US headed by Miss Margaret Curtis, 28 Mt. Vernon St., Boston, Mass., are organizing Pam Barton days at clubs all over the country to raise money to help Ladies' Golf Union of Great Britain send its women's team to the US in 1950 for the international competition begun in 1932. A lot of men golfers are sharing in the enterprise. Miss Barton won the US and British women's titles in 1936 and the British women's again in 1939. She got into the war right at the start, became a pilot in the WAAF and was killed in 1943. She was a sweet kid and a great golfer. A memorial to her ought to have every woman and man golfer in the US who prizes sportsmanship, participating. The Left-handers' national association already has chipped in. Pros should write Miss Curtis for information on Pam Barton days and pass this information along to heads of their women's golf committees.

Indiana Pros Meet April 4

Indiana PGA will have its annual business conference and meeting at Indianapolis, April 4. Pros from southern Ohio and Kentucky also are being invited to sit in on the educational sessions.

FRESH MEADOW'S NEW PLANT

(continued from page 52)

here, tried them recently and couldn't get over the transition."

Lakeville, an off-shoot of the historic Sound View GC in Great Neck, a rendezvous for Broadway's stage folk, had limited facilities for parking. That, of course, posed a problem for Fresh Meadow with its intent of bringing in major championships. To solve that one, Fresh Meadow had to bring in bulldozers and other equipment to dig into the hill alongside the seventh hole. The result is that a streamlined parking space for several hundred cars lies within easy walking distance of





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The major changes in the course include new rear tees, additional fairway bunkers to accent the gorgeous greens — and, of course, to penalize weak approach shots remodeling of all traps and bunkers to better define them and to fashion a number of bottleneck greens.

Three Sets of Tees

"Although we have been striving to produce a real championship test, we, paradoxically, are designing a layout that will be suitable to the average club member," declared Ciuci. "We have three sets of tees at most of the holes. We can give them a course of 6,500 yeards, one of 6,800 or one of better than 7,000.

"When we came here, the course wasn't in tip-top shape, but the fine foundation of the layout, provided by the original owners, helped us immensely. Lakeville had the best that money could buy and money was no object in those days. Mr. Jonas and his associates dumped more than \$2,000,000 into creating Lakeville. It was natural, 1 suppose, that while the club was under the management of Prudence that budgets were held down and the course was slightly starved. But, as I said, the original materials were of the best. That was a factor in our favor when we attempted to restore the course to its pristine beauty."

One of the improvements most appreciated by the Fresh Meadow members on a hot, humid day is eight drinking fountains, strategically distributed over the big course. Some of the holes have been lengthened

